Dyna Doctor Tool Operation Manual for RAS Inverter model.

This tool Toshiba Carrier company we are provide service tool for support sale entity or service team use this tool software and hardware for connect with inverter unit to get the detail information of system during operation / stand by that it collect data from sensor thermistor and other hardware / software processing

1. **How to connect hardware to access data information from Inverter unit** Service team need to provide Dyna Doctor Kit as below model

TCB-DK01SS-E: CNV2-3.3V
By this tool it can connect USB port of Laptop directly.
When you connect USB port, you must install USB Driver.
This driver can download below URL.
FTDI (Future Technology Devices International Ltd.).
URL : *http://www.ftdichip.com/Drivers/VCP.htm*
Device Name : *FT232R*

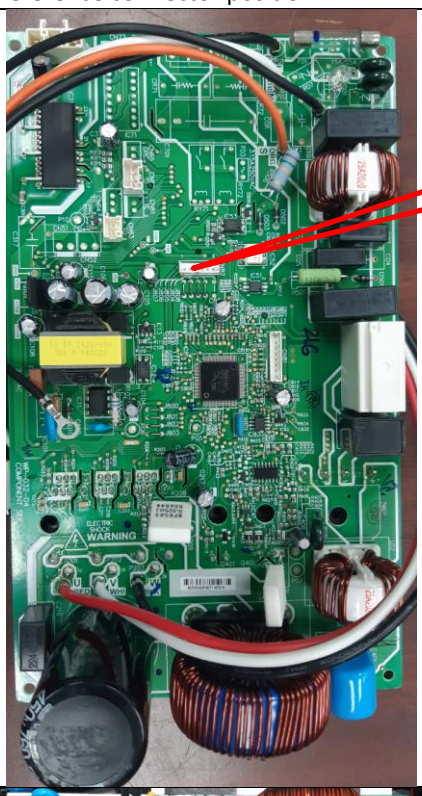
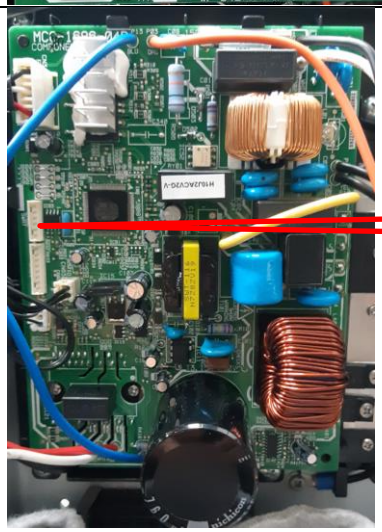
Figure 1.1 DDT hardware

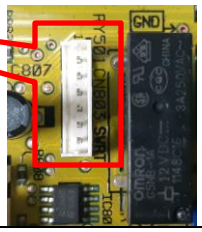
2. **Down load DDT program** setup.exe then installation in PC or laptop and **How to connect DDT to CDU Inverter unit.**

1) Turns it off power supply to unit, Ensure no power supply to unit when connect lead of DDT tool for safety with device and service man.

2) Open the top cabinet, front cabinet and cover inverter unit to connect DDT kit device (Connector 6 pin) with SWRT connector housing on CDU PCB of each type as below table.

No.	PCB type	Model apply	Reference connector position	SWRT connector
1	WP-030	RAS-07, 10, 13S3AV RAS-10N3ACV RAS-10N3AV RAS-13, 16,18, 22, 24BAV RAS-13, 16,18, 22, 24BACV RAS-16, 18,22,24J2AVG RAS-16, 18,22,24,25PACVG RAS-16, 18,22,24,25PAVSG RAS-16, 18,22,24TAVG RAS-18, 24, 28U2ACV RAS-25, 35PAVPG RAS-H13, H18J2ACV RAS-H18, H24PACVG RAS-H24BACV RAS-H18, H24U2ACV RAV-GM301AT RAV-GM401AT		CN82 

No.	PCB type	Model apply	Reference connector position	SWRT connector
2	WP-032	RAS-05,07,10,13BAV RAS-05J2AVG RAS-05TAVG RAS-05,07,10, 13U2AV RAS-07,10, 13PAVSG RAS-10, 13PACVG RAS-10, 13BACV RAS-10, 13N3ACV-SG RAS-10, 13PACVG RAS-10, 13PAVSG RAS-10, 13J2AVG RAS-10,13J2AVRG RAS-10, 13J2ACVRG RAS-H10, H13J2ACVRG-V RAS-H13PACVG-V RAS-H13U2ACV2G		CN82 
3	WP-042	RAS-10U2ACVG RAS-H10U2ACV2G		CN82 
4	MCC-1686	RAS-10U2ACV RAS-H10J2ACV RAS-H10U2ACV		CN82 

No.	PCB type	Model apply	Reference connector position	SWRT connector
5	MCC-1571	RAS-24N3A RAV-SP804AT		CN800 
6	MCC-1626	RAV-GExx01A8 RAV-GM11, 1401AT8 RAV-SM11, 1401AT8 RAV-TE1401A8		CN803 
7	MCC-1648	RAS-30PA RAV-GE2501AP RAV-GE3001AP RAV-GE3601AP RAV-TE1001AP RAV-TE1251AP RAV-GM1101AT RAV-GM1401AT RAV-SM1104AT RAV-SM1404AT		CN803 
8	MCC-1731	RAV-SM1404ATP		CN803 
9	WP-044	RAV-GE13,18,2401AP RAV-SM804ATP		CN804 
10	MCC-1645	RAS-10,13,16G2AVP RAS-22, 24PAV RAS-25, 35S3AVP-ND RAV-GM561AT RAV-GM801AT		CN804 

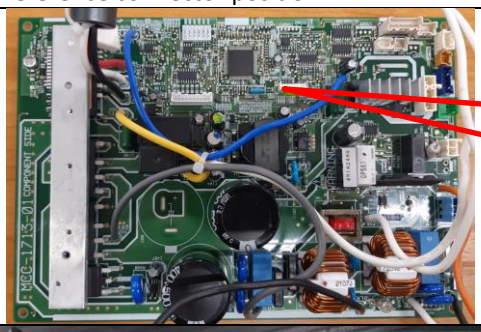
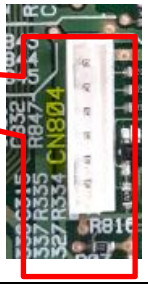
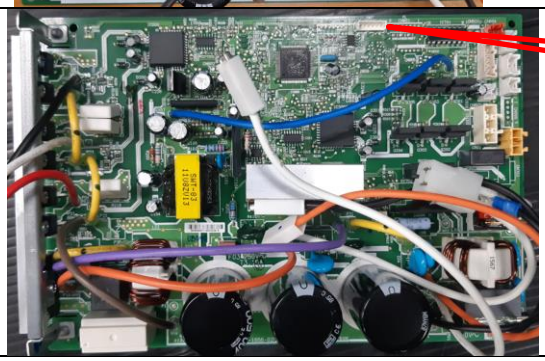
No.	PCB type	Model apply	Reference connector position	SWRT connector
10	MCC-1713	RAV-GP561AT		CN804 
11	MCC-1656	RAS-18N3A RAS-22N3A RAV-SM304AT RAV-SM404AT RAV-TE401AP		CN804 

Table 2.2.1 Location of SWRT of each PCB type

3) Connect DDT USB lead or RS232 to PCB and computer (Check sure computer have installation diver before if no please down load as link URL above and installation for ready to used).

4) Power supply on to standby or operate start.

3. How to used DDT for RAS (Inverter) model

1. Installation software or upgrade on PC and register program for continues use in case of service man never installation before.
2. Set shortcut then double click at shortcut icon as below to open program or click start from window bar.

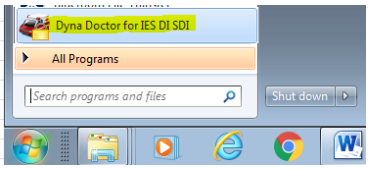
or


Figure 3.2.1 How to open program

3. Click OK after window Welcome to Dyna Doctor display

Figure 3.3.1 Software version

Remark:

This software need for register or activate within 30 Day for new user, if overdue program cannot use, so **please execute license before date of expiration**, In case of upgrade program not need to do for execute license.

Figure 3.3.2 Message reminder

4. Select setting for monitor mode or history mode.

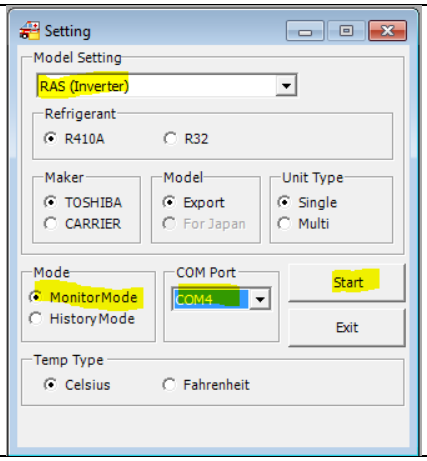
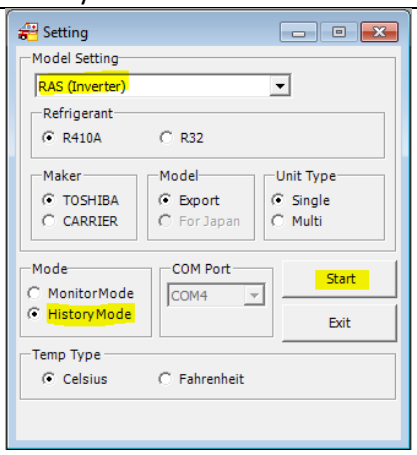
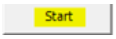
No.	Monitor mode	History mode
1		
2	Select and setting as below. **Model setting → RAS (Inverter)** Refrigerant → R410A Maker → TOSHIBA Model → Export Unit type → Single **Mode→ Monitoring mode** Comp port auto display*	Select and setting as below. **Model setting → RAS (Inverter)** Refrigerant → R410A Maker → TOSHIBA Model → Export Unit type → Single **Mode→ History mode**
3	Select or click complete then click start 	

Table 3.4.1 Main menu setting

*Comport → Select port from USB Manager, if only one device connect program will auto display.

5. After click start  window will change display as below.

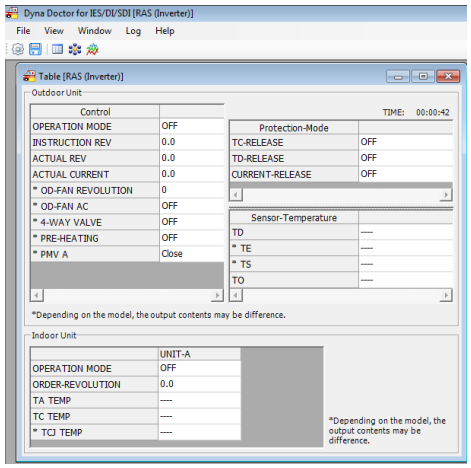


Figure 3.5.1 Table data

6. How to record file, Click File →Save data  then select directory for record file.

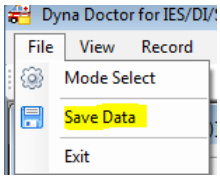


Figure 3.6.1 How to record

Display will change as below then please set record interval for table data.

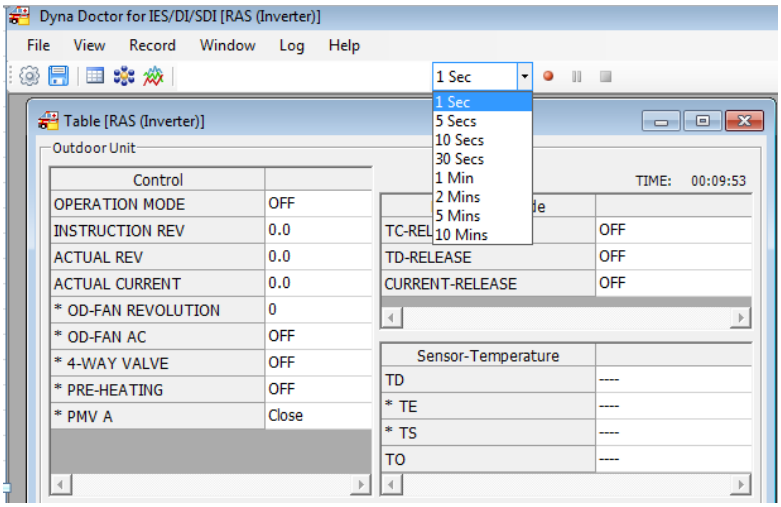


Figure 3.6.2 Time interval set

Click record start at red mark for start record, (Click = Pause record or click = Stop record.

7. Select directory for file for save, usually name will auto set by DDT software 190310_A.dat (19= Year 20**19**, **03**= Month (Jan =01, Feb=02, **Mar=03**),10= date of record or service man can Make new file name Up to they can understood then click **Save**.

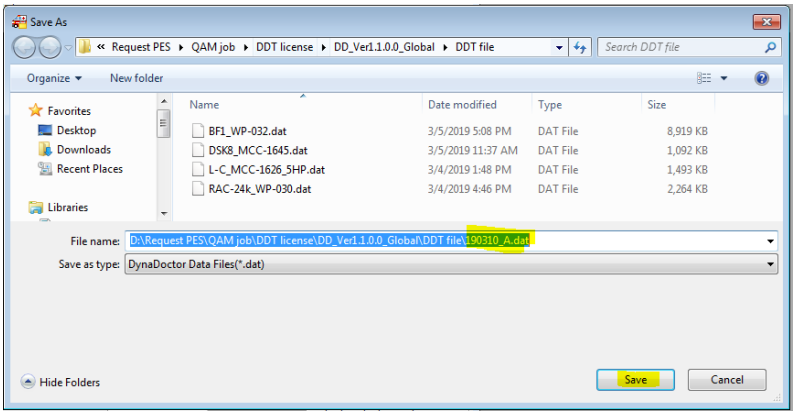


Figure 3.7.1 How to save file

Display will change as below, during record symbols change from red to gray color.

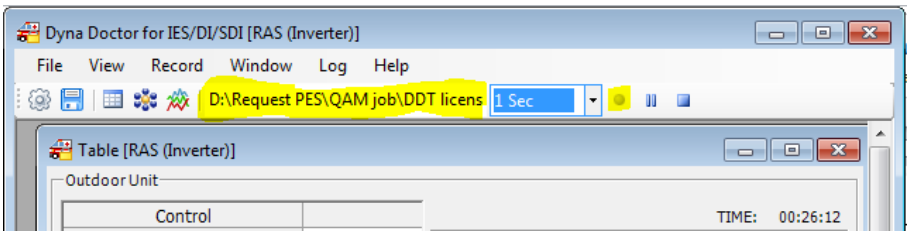


Figure 3.7.2 Display symbols during record

8. During record service man can monitor Table, Map and Graph by click of each icons then display will show as below.

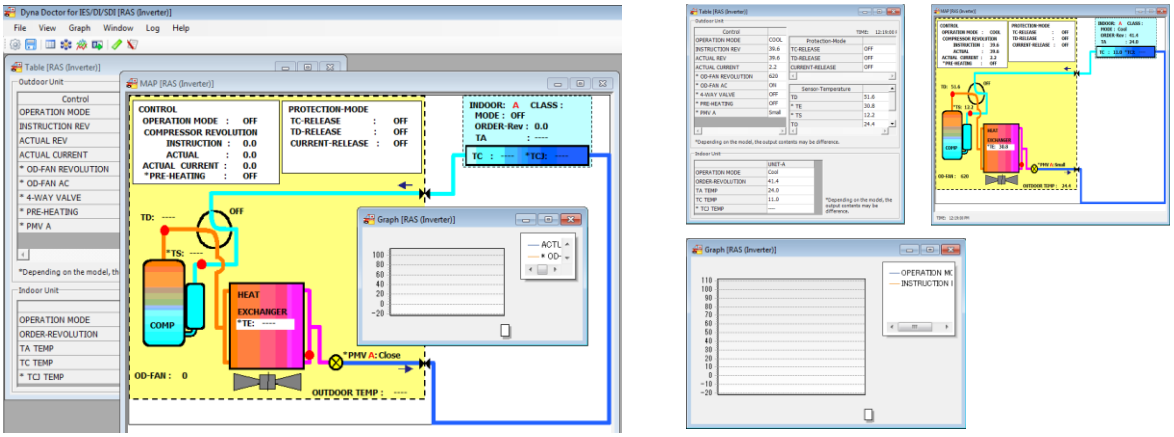


Figure 3.8.1 Window of each display

9. How to change graph.

9.1) After click graph display graph will display as below picture.

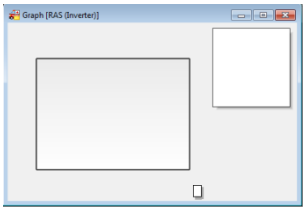


Figure 3.9.1 Initial graph

9.2) Default factory setting no any item on graph then user need for addition items that they are interesting to monitoring by click "Data select" for display and Interval(sec) then click OK Can select max 8 items.

Suggest set Interval (Sec) same data table to match with number during display on window.

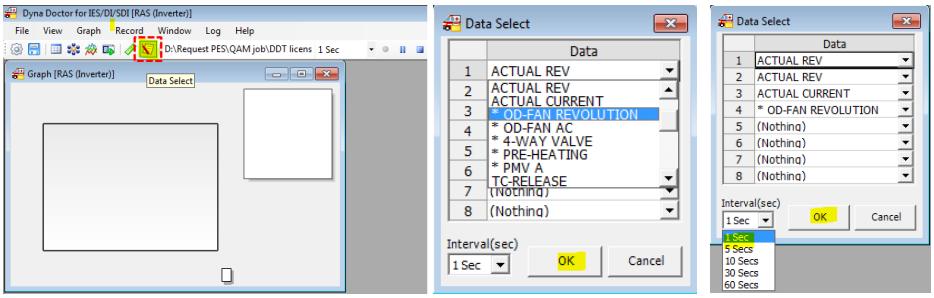


Figure 3.9.2 Data select for display trend

9.3 Scale setting by Click for scale setting as below.

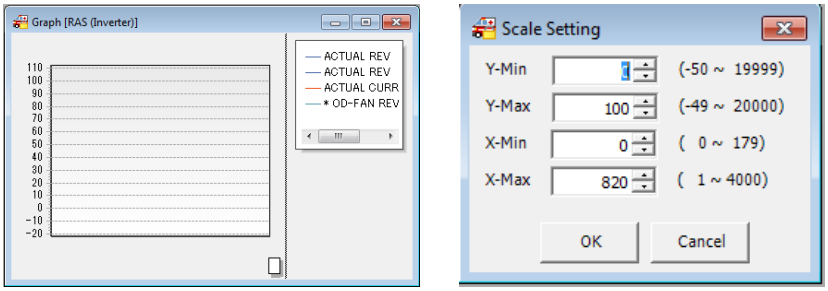
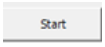


Figure 3.9.3 Scale setting

4. How to check history file

4.1) Select model setting RAS (Inverter)

4.2) Select history mode then click start 

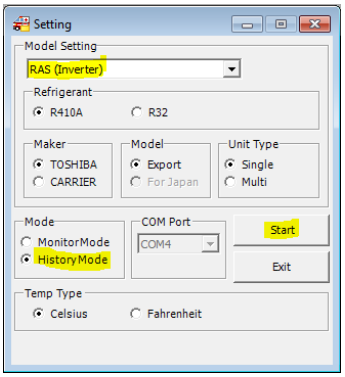


Figure 4.2.1 Set display for history mode

4.3) Browse file name from directory folder that file record are keep then double click for file need for open then click open and click “File Open” for start”

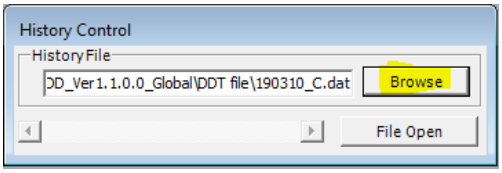


Figure 4.3.1 browse file for open

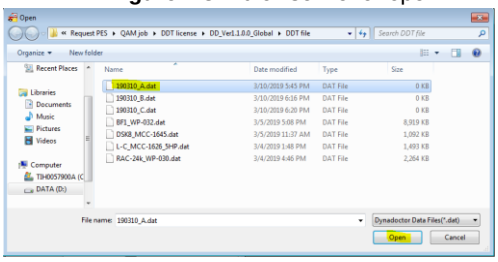


Figure 4.3.2 Select file for open

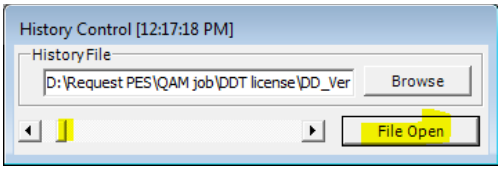


Figure 4.3.3 Cursor to slide for monitor

4.4) Display will show as below.

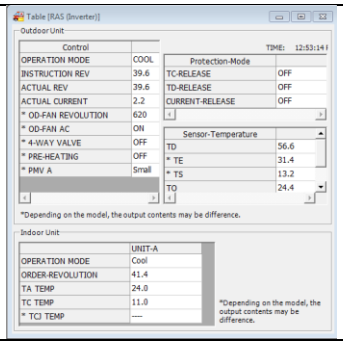
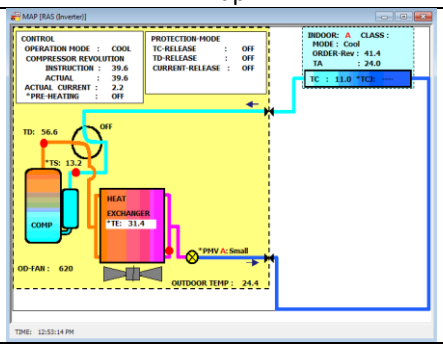
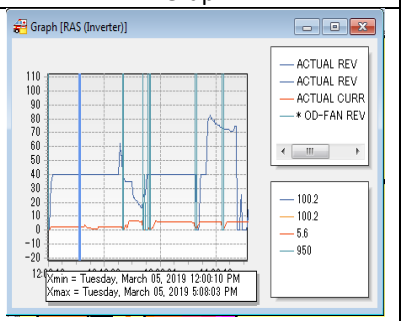
Items	Table	Map	Graph
Display			

Table 4.4.1 display of history

4.5) Trend graph when user open file need for adjust scale to match with time of each file from recording and user can select or slide cursor to monitor number on the trend of graph as below.

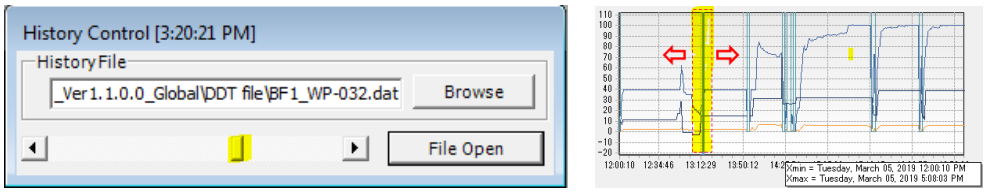


Figure 4.5.1 Cursor slide on history control bar

4.6) Method for adjust scale when open new file.

4.6.1) Need for set scale to match with file update record.

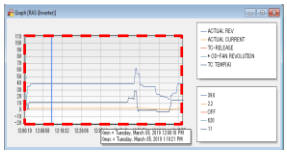
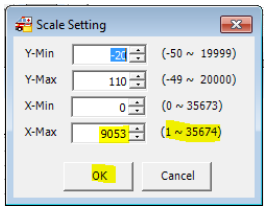
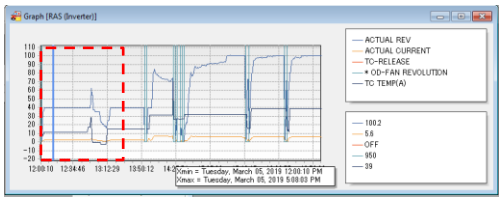
No	Items	Figure	Description
1	Graph after open file		Graph show in some area
2	Scale setting		If need to show with full trend need change setting X-Max from 9053 to 35674 then click OK trend graph will change as below.
3	Graph after scale setting		We can see trend of record with full time record.

Table 4.6.1 How to setting scale graph

4.6.2) In any open new file name or change file need to doing on detail of table 4.6.1

5. Wording definition on Table data

Unit	No	Items	Meaning
Indoor	1	TA temp	Room temperature (Return air to unit)
	2	TC temp	Coil temperature (Center of coil)
	3	TCJ temp	Coil temperature (Outlet)
Outdoor	1	TD temp	Discharge temperature
	2	TE temp	Coil temperature before out condenser
	3	TS temp	Suction temperature
	4	TO temp	Outside temperature (Detect temp before entry condenser

Table 5.1 Definition of sensor temperature